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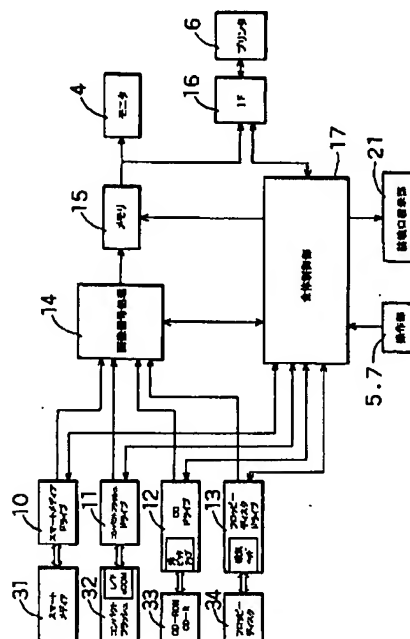
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(54)【発明の名称】 画像再生装置

(57) 【要約】

【課題】 プリント時間を表示すると共に、目的にあった再生方法を選択できるようにした画像再生装置を提供する。

【解決手段】 記録媒体に記録されたプリント情報を読み取り手段(10～13)で読み取り、該プリント情報から演算手段(14)で画像の再生時間を演算して表示手段(4)に表示し、再生時間が表示されている状態において再生選択手段(4,5,7,14)によって画像の再生方法を選択する。



## PATENT ABSTRACTS OF JAPAN

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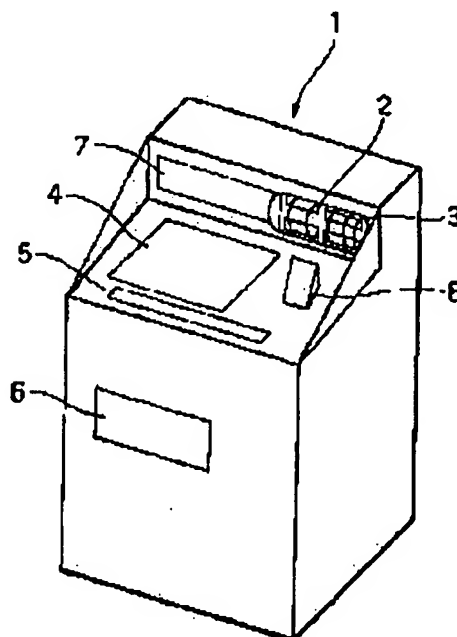
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## (54) IMAGE REPRODUCING SYSTEM

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To enhance convenience by indicating the reproduction time of an image determined from print information recorded on a recording medium and selecting an image reproducing method from the indicated reproduction time thereby making possible to select a reproducing method suitable for the print time and eliminating meaningless waiting time.

**SOLUTION:** When processing is started at an image reproducing system 1 and the type of recording medium (smart media SM, compact flash CF, optical disc CD, floppy disc FD) is selected, an indicator on the side of a selected media loading port 2 is lighted to bring about a loading stand-by state. When a relevant media is loaded, image data reading operation is started and the tag data part of the image data is read out along with the high resolution image data of first image. The time required for image reproduction is then operated from the read-out data and displayed on a monitor 4. Under a state where the reproduction time is displayed, an image reproduction method is selected on a keyboard 5, or the like.



## LEGAL STATUS

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examiner's decision of rejection or application converted  
registration]

[Date of final disposal for application]

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**Notes:**

1. Untranslatable words are replaced with asterisks (\*\*\*\*).
2. Texts in the figures are not translated and shown as it is.

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Dictionary: Last updated 07/20/2007 / Priority: 1. Information communication technology (ICT) / 2. Electronic engineering / 3. JIS (Japan Industrial Standards) term

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**FULL CONTENTS**

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**[Claim(s)]**

[Claim 1] It can load with the record medium with which the print information corresponding to two or more image data and these two or more pictures of each was recorded. In the picture reproducer which reproduces the picture currently recorded on the record medium with which it was loaded A read means to read the print information recorded on the above-mentioned record medium, and an operation means to calculate the reproducing time of a picture from the print information read by this read means, Picture reproducer characterized by having a display means to display the calculated this reproducing time, and a reproduction selection means to choose the reproduction method of a picture in the state where the this calculated reproducing time is displayed.

[Claim 2] Picture reproducer according to claim 1 made as [ choose / from the reproduction method containing at least two without the index display of two or more pictures to the above-mentioned display means, one frame display, and a display / the above-mentioned reproduction selection means ].

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**[Detailed Description of the Invention]**

[0001]

[Field of the Invention] Especially this invention relates to the equipment which enabled it to choose the reproduction method appropriate for the purpose while displaying printing time about picture reproducer.

[0002]

[Description of the Prior Art] Conventionally, the picture photoed in photography equipment is recorded on record media, such as memory card and a floppy disk (only henceforth FD), a

personal computer or printing equipment is loaded with the record medium, and the system which plays a picture is proposed.

[0003] Generally the above record media can record the picture of hundreds of [ tens to ] sheets. Moreover, the information on print necessity and the thing to record on a record medium are proposed in recent years with the picture photoed with the digital camera etc.

[0004]

[Problem to be solved by the invention] However, when printing the picture of the record medium with which above-mentioned print information was recorded and there were many pictures to print, printing time also had the problem that considerable starting and the user had to stand by in the state of doing nothing in the meantime.

[0005] On the other hand, as shown, for example in JP,H9-114004,A, what carries out prediction arithmetic of the printing time, and a user is notified of was proposed, but equipment given [ above-mentioned ] in a gazette was not what only notifies of time and can choose the reproduction method.

[0006] This invention makes it a technical problem to offer the picture reproducer which enabled it to choose the reproduction method appropriate for the purpose while displaying printing time in view of this problem.

[0007]

[Means for solving problem] Then, the picture reproducer concerning this invention can load with the record medium with which the print information corresponding to two or more image data and these two or more pictures of each was recorded. In the picture reproducer which reproduces the picture currently recorded on the record medium with which it was loaded A read means to read the print information recorded on the above-mentioned record medium, and an operation means to calculate the reproducing time of a picture from the print information read by this read means, It is characterized by having a display means to display the calculated this reproducing time, and a reproduction selection means to choose the reproduction method of a picture in the state where the this calculated reproducing time is displayed.

[0008] One of the features of this invention is at the point which displays in quest of the reproducing time of a picture from the print information recorded on the record medium, and enabled it to choose the reproduction method of a picture from the displayed reproducing time. The reproduction method which suited printing time can be chosen by this, the latency time cannot be spent unnecessarily, and facilities can be given.

[0009] Although the reproduction method in particular is not limited, it is [ that the reproduction selection means just chooses the reproduction method of a picture ] good to make as [ choose / it / from the reproduction method containing at least two without the index display of two or more pictures to a display means, one frame display, and a display ].

[0010]

[Mode for carrying out the invention] This invention is hereafter explained in detail based on the example shown in Drawings. Drawing 1 is the external view showing the desirable embodiment of the picture reproducer concerning this invention, and it is the example which the user injected the charge, and this checked the picture by itself, and was applied to the equipment of the coin vendor method to print. In the figure, the image recording Media charge section 2, a monitor 4, a keyboard 5, the printer section (however, only the print exhaust port has appeared in drawing 1 ) 6 that has a print exhaust port, the panel 7 which displays the kind of Media with which it can be loaded, and charge input port 8 are formed in the picture reproducer 1.

[0011] The image recording Media charge section 2 consists of these examples possible [ charge of four kinds of archive media ], and the cover 3 for the measure against protection against dust is formed in the image recording Media charge section 2. In addition, you may make it prepare the shutter for protection against dust in each charge mouth instead of a cover. Moreover, a monitor 4 displays a picture and operator guidance, and the touch panel is prepared in the surface.

[0012] Drawing 2 shows the details of the archive-medium charge section 2 and the display panel 7. In the figure, four kinds of form of Media with which this equipment can be loaded is displayed on the display panel 7. As for SM, Smart Media and CF show a compact flash, CD shows an optical disk, FD shows a floppy disk, and the number before each sign is made to correspond to the number of a charge mouth here.

[0013] A user collates the kind of archive medium with the display of the display panel 7, and chooses applicable Media. Selection may prepare a touch switch in the display panel 7, and you may make it input a number into it with a keyboard 5. Selection of Media will switch on the display 21 prepared in charge \*\*\*\* corresponding to selected Media. The example as which Smart Media was chosen is shown in drawing 2 . A user loads with an archive medium the driver which the display 21 has turned on. By making it above, the user can identify his Media and does not load the wrong charge mouth.

[0014] Drawing 3 is a functional block diagram inside equipment. In a figure, since 10 is the drive which reads the picture currently recorded on Smart Media 31 and Smart Media 31 is memory which memorizes data, it can go to read the data of the storage location (address) direct. 11 is the drive which reads the picture currently recorded on the compact flash 32, and since uCOM for I/F is carried in the interior, as for a compact flash 32, the drive side can read the data of a predetermined position by communication with the I/F-uCOM.

[0015] 12 is the drive which reads the picture currently recorded on CD33, such as CD-ROM and CD-R, and can read the data which was alike with the optical pickup lens and was recorded more on CD. 13 is the drive which reads the picture currently recorded on FD34, and

can read the data in which magnetic signal record was carried out by the magnetic head.

[0016] The contents which the picture signal processing section to which 14 processes a picture signal from each Media to the object for monitors and the object for a print, and 15 are the memory sections which record the picture by which signal processing was carried out, and are recorded on the memory section 15 are reproduced by a monitor 4 and the printer section 6. 16 is Interface Division with the printer section 6, and the information on print size is sent through Interface Division 16 from the whole control section 17. 17: It is the whole control section which controls the whole equipment.

[0017] Here, the tag information currently recorded on each Media is read by each drives 10-13, and is sent to the whole control section 17. Drawing 4 shows the example of the structure of the data currently recorded on Media. [ in Media recorded by photography equipment, such as a digital camera, ] The tag data division on which the information relevant to a picture in the image data of each coma, including a frame number, a date, the print information of whether to perform the print of this piece, a photographing condition, etc., was recorded, It consists of the high-resolution image data sections (for example, 640x480 pixels) and the thumbnail-image-data sections for thumbnail indications (80x60 pixels) which were compressed in JPEG form.

[0018] Drawing 5 and drawing 6 show the flow chart of processing from the Media charge to a print. This processing is hereafter explained with the display example of the monitor 4 of drawing 8 . If processing is started and the kind of archive medium is chosen as mentioned above (Step S1), the display 21 in the side of the selected Media charge mouth 2 will be turned on (Step S2), and it will stand by being loaded with Media (Step S3). If loaded with Media, reading processing of image data will be started and display 21 will blink first (Step S4). When display 21 changes to blink from lighting, the user was told about being during reading of image data, and it has prevented that an archive medium is extracted during reading.

[0019] Next, the time which the tag data division of each image data and the high-resolution image data of the 1st picture are read (Step S5), and image reconstruction takes from the read data calculates, and it is displayed on a monitor 4 (Step S6). Image reconstruction time is the input (read in) time  $t_r$  of image data, the index display time  $t_d$  of image data, and the total time of the image data printing time  $t_p$ . The computing type is shown hereafter.

[0020] [Input (read in) time  $t_r$  of image data] When picture capacity is contained in tag data,  $t_r$  is calculated by carrying out division of the total capacity of image data at the picture reading speed  $V_r$ . That is, it asks with  $t_r = (\text{sigma each image data capacity}) / \text{picture reading speed } V_r$ . However,  $V_r$  changes with input Media. For example, since uCOM for I/F is carried in the Media side in the case of the compact flash, the high-speed read-out is possible. Although reading in a maximum of 10 MByte(s)/sec [ more than ] speed is possible, average reading speed is set up with  $V_r(\text{CF}) = 8\text{MByte/sec}$ , and read time is calculated.

[0021] In the case of Smart Media, in order to be a drive side and to have to perform taking-in

control of reading data compared with a compact flash, reading speed becomes slow for a while. Some margins are seen, it sets up with  $Vr(SM) = 4\text{MByte/sec}$ , and read time is calculated.

[0022] In the case of CD, with an optical pickup lens, rotating CD, the pit data (concavo-convex data) of CD is detected, and data reading is performed. Although it is possible even a maximum of 5 MByte/sec at the moment, in consideration of the arrangement variation of data etc., it sets up with  $Vr(CD) = 2\text{MByte/sec}$ , and read time is calculated.

[0023] In the case of FD, in the case of FD, some margins are considered to actual ability, it sets them up with  $Vr(FD) = 20\text{KByte/sec}$ , and calculates read time.

[0024] When picture capacity is not contained in tag data, it asks by the image data (capacity a) /  $Vr$  of number  $nr$  of  $tr = \text{image data 1 position}$ .

[0025] [Image data index display time] The image data index display time  $td$  is found by the number  $nrof$   $td = \text{image data} * \text{picture reduction time } t1$ .

[0026] [Image data printing time  $tp$ ]

The initial time  $t20$  of a  $tp = \text{print picture number-of-sheets } np * \text{picture printing time } t2 + \text{print asks}$ . The example of the screen where printing time is displayed is shown in (a) of drawing 8. The information on printing time: 5-minute \*\* is displayed on this screen for image data index display time: 2 minutes for a charge Media: compact flash, number: of record image data 12 sheet, print picture number-of-sheets: 9 sheet, and image data reading time: 1 minute.

[0027] The "index display" of a screen is chosen in the state of the screen shown in (a) of drawing 8 to check the picture to print by an index display (Step S6). Then, regardless of print setting data (data in which print setting number of sheets was entered), all the record data is read and an index table is shown in a monitor 4 (Steps S8-S10). The example of the index display screen is shown in (b) of drawing 8.

[0028] It will be judged whether it prints or not if an index display is made (Step S12). If the picture which should be printed is chosen, the print number of sheets is inputted and it pushes the print switch of a screen in printing, a print will be started, the subroutine of a print pretreatment is called, a setup of a print is performed, and a print is performed (Step S13, S14).

[0029] In the state of the screen shown in (a) of drawing 8, in thinking that he wants to print while the reproducing time of the displayed picture is short and checks a picture, it chooses "one frame display" of a screen. Regardless of print setting data, also in this mode, all the record data is read one by one, image display is carried out one by one, and the check of a print is performed. Namely, since it is judged whether a package print is carried out first (Step S8) and it is not a package print After it was judged whether reading of image data was started (Step S16), and cancellation \*\* was pushed (Step S17), If one piece of displays of a picture are performed at a time (Step S18), it is judged whether it prints or not (Step S19) and a print

switch is pushed, a print is started (Step S20), and above-mentioned processing will be repeated until all the image data is completed (Step S21).

[0030] By pushing cancellation \*\* (not shown) prepared in the keyboard 5, it is cancellable, and if canceled, reading will be ended for reading and a print to take time and cancel on the way.

The picture of one piece is read and the example currently displayed is shown in (c) of drawing 8 . If a print switch is pushed in this state, a print will be started, and the picture of the frame number of order is read and displayed by the "front piece" and "following piece" switch.

Moreover, as mentioned above, the image reading of the following piece is started to compensate for a print start, loading of a print and a picture is performed in parallel, and, thereby, time shortening can be aimed at.

[0031] In the state of the screen shown in (a) of drawing 8 , when it is thought that the check of a print picture wants to be unnecessary and to print without image display, the "package print" of a screen is chosen. Since short-time image reconstruction is expected if possible if this menu is chosen, only the data with which print setting was carried out is read.

[0032] That is, if processing is started, a print pretreatment will be started without only the picture by which print setting is carried out having \*\* read (Step S22), and displaying image data, such as an index display, and a print will be performed (Step S23, S24). Processing is ended, when cancellation \*\* is pushed on the way or all the piece prints of the print setting picture are carried out (Step S25, S26).

[0033] Drawing 7 shows the flow chart of the subroutine of a print pretreatment. In this subroutine, before a print is started, the number of sheets of the image data of which the print was required counts (Step S31), and the time which a print takes before a print calculates, it is displayed on a monitor 4 (Step S32, S33), and processing is ended.

[0034] That is, at Step S31, the print number of sheets of each image data is detected, the total print number of sheets is computed, and the time required of a print is computed from the total print number of sheets at Step S32. A formula is as above-mentioned. Print number of sheets and printing time are expressed as Step S33. One example of the display screen is shown in (f) of drawing 8 . In this display, it is indicated by count-down both number of sheets and time as printing time progresses. Although it is \*\*\*\*\* in the example, a graphical display like a level meter is sufficient.

[0035] (d) of drawing 8 is the modification of (b) of drawing 8 , and is an index display example in case the print number of sheets of not only the information on print necessity but each picture is recorded on the tag portion of the memory card. The number shown in the lower part at each picture shows print number of sheets.

[0036] (e) of drawing 8 shows the example of a print number-of-sheets input screen in case print number-of-sheets information is not recorded. Although the default is considering it as each one picture, print number of sheets is inputted with a keyboard 5 to print two or more



identical images. This screen should just be displayed, when a picture to input print number of sheets into in the index display of (b) of drawing 8 is chosen, or when the touch switch on a picture is pushed in the state of the 1 frame display shown in (c) of drawing 8 .

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[Brief Description of the Drawings]

[Drawing 1] It is the perspective view showing the appearance of the desirable embodiment of the picture reproducer concerning this invention.

[Drawing 2] It is the figure showing the details of the archive-medium charge section in the above-mentioned embodiment, and a display panel.

[Drawing 3] It is the figure showing functional block of the control system in the above-mentioned embodiment.

[Drawing 4] It is the figure showing one example of the structure of the data currently recorded on the record medium in the above-mentioned embodiment.

[Drawing 5] It is the figure showing a part of flow chart of the processing in the above-mentioned embodiment.

[Drawing 6] It is the figure showing the flow chart following drawing 5 .

[Drawing 7] It is the figure showing the flow chart of the subroutine of the print pretreatment in drawing 5 .

[Drawing 8] It is the figure showing changes of the display example of the display in the above-mentioned embodiment.

[Explanations of letters or numerals]

1 Picture Reproducer

2 Archive-Medium Charge Section

4 Monitor (Display Means, Reproduction Selection Means)

5 Keyboard (Reproduction Selection Means)

6 Printer Section

7 Vanel (Selection Means)

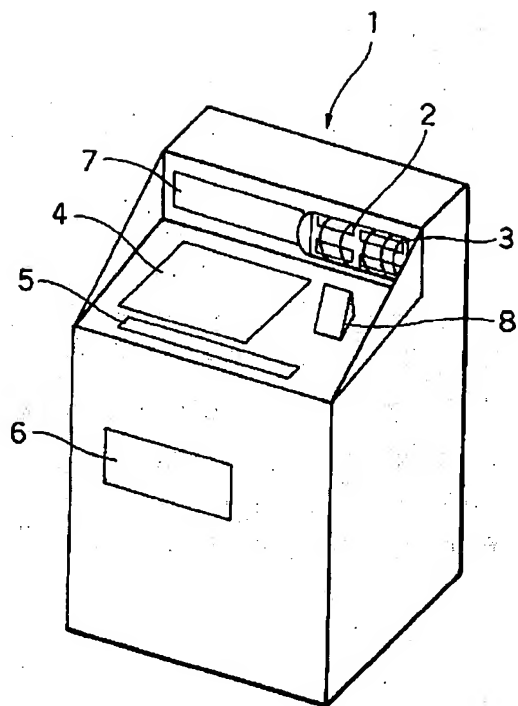
10, 11, 12, 13 Drive (read means)

14 Picture Signal Processing Section (Operation Means)

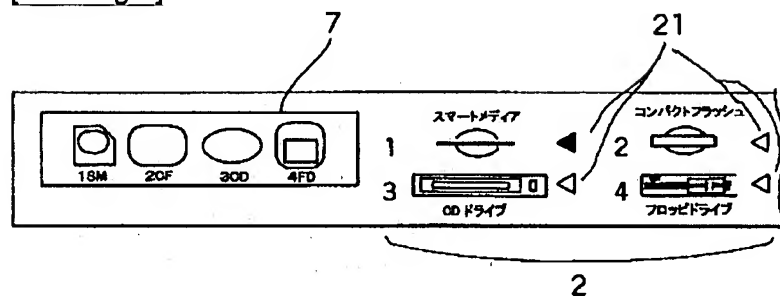
17 Whole control section (reproduction selection means).

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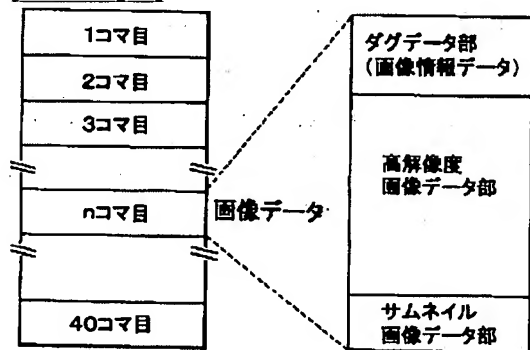
[Drawing 1]



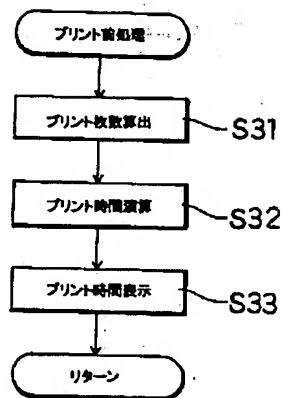
[Drawing 2]



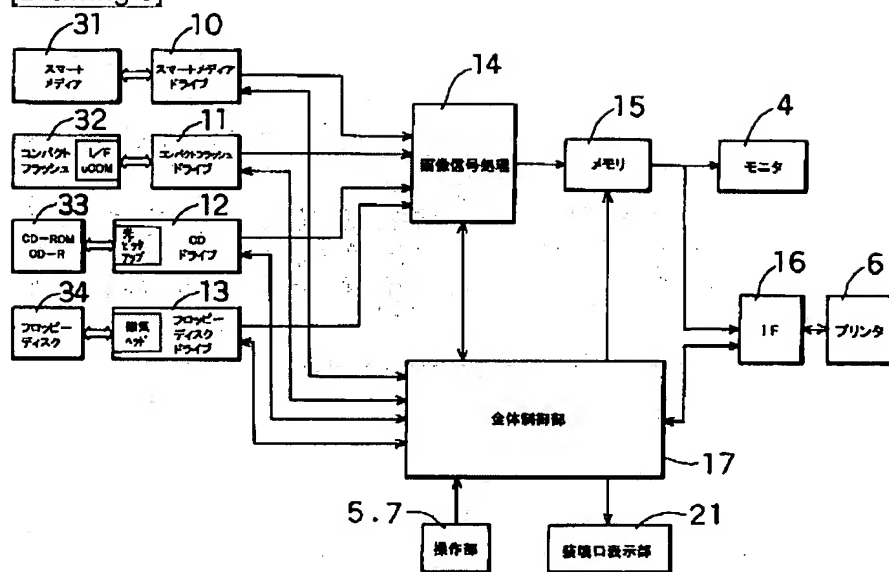
[Drawing 4]



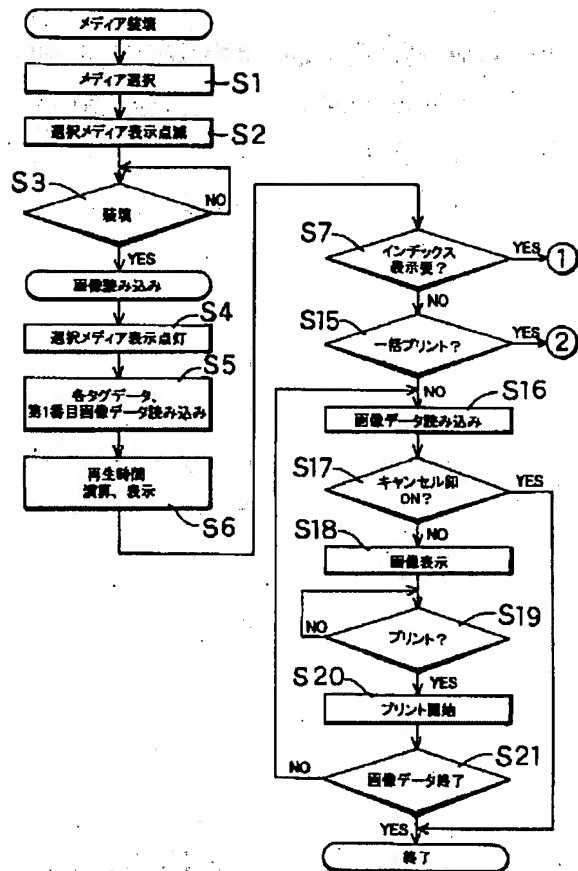
[Drawing 7]



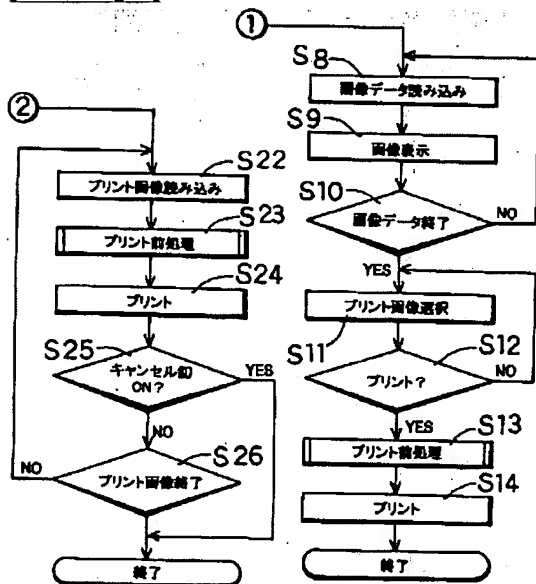
[Drawing 3]



[Drawing 5]



[Drawing 6]



[Drawing 8]

記録メディア:コンパクトフラッシュ  
 記録データ数 : 12枚  
 プリント画像枚数 : 9枚  
 画像データ読み込み時間 : 1分  
 画像データINDEX表示時間 : 2分  
 プリント時間 : 6分  
 再生形式を選択して下さい。

(a)

1	1	1	0
1	0	1	1
1	1	1	0

(b)

(c)

3	2	1	0
2	0	2	2
1	3	2	0

(d)

枚数を入力して下さい。

枚

(e)

総プリント枚数 : 18枚  
 総プリント時間 : 約10分

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残りプリント枚数 : 10枚  
 残りプリント時間 : 約6分

(f)

[Translation done.]